

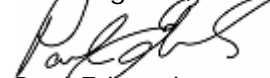
Hello Z7396-1 and good-bye Z305.1!

After many years of development it is finally coming to market. The Technical Committee has approved the Standard, and CSA Z7396-1 is now undergoing final editing for publication this summer. We anticipate a July release, at which time the Z305.1 Standard will be withdrawn.

The Standard includes many changes to the design, installation, and certification of centrally piped medical gas & vacuum systems. In this edition of CirculAire we highlight one of the most important new safety based requirements and tell you what VitalAire is doing in response.

Throughout the year VitalAire will be helping our customers get up to speed on Z7396-1 with Lunch & Learn seminars, CirculAire articles, and info posted on www.vitalaire.com. As always, we look forward to being of service to our valued healthcare facility clientele, the consulting community, and of course all contracting firms involved in the medical gas piping industry.

Best regards,



Paul Edwards

Product & Marketing Manager

CSA Z7396-1, clause 7.1.13

"All components of the pipeline distribution system that may be exposed to cylinder pressure in normal or single fault condition shall not ignite when submitted to oxygen pressure shocks. The test for ignition is given in Clause 11.8.1 of CSA Z10524"

This new requirement is intended to reduce the risk of adiabatic compression induced ignition, and it applies to components such as regulators, valves, pigtailed, switches, and transducers exposed to high pressure oxygen.

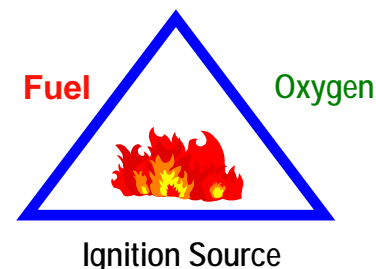
What exactly is **adiabatic compression** and how can it induce ignition?

Adiabatic compression is best described as the **compression of a gas without extraction of heat, resulting in increased temperature.**

As illustrated by the Fire Triangle, three elements are required for a fire happen. First you need something to burn; the **fuel**. The fire must be started; the **ignition source**. And finally, fires require **oxygen** to remain viable.

When considering an oxygen manifold, the oxygen is supplied by the gas cylinders, the fuel could be plastic materials within a component part (i.e. regulator seat), and the adiabatic compression (i.e. heat) could be the ignition source.

Fire Triangle



By ensuring the use of adiabatic compression tested parts, CSA Z7396-1 will force the removal of a potential ignition source, thus making the piped oxygen systems safer for patients and hospital personnel.

What are we doing?

A key part of VitalAire's vision is **to consistently demonstrate excellence in safety and compliance in all aspects of our business**. We are working closely with our equipment suppliers to ensure compliance with CSA Z7396-1, and even before the new Standard is released we are updating VitalAire owned medical oxygen installations with ignition tested regulators, pigtails, and pressure switches.



The parts we are using have been carefully selected to ensure a high level of patient safety. Not only must they be ignition tested, but also all non-metallic materials in the gas stream must conform to a strict list of acceptability. All burning fuels emit gases. Consistent with ISO 15001 guidance we are using products with the lowest levels of combustion toxicity.

We are also compiling a database of OEM ignition tested components, and will be reviewing customer owned installations that we service for compliance. For the safety of our employees and customers we will be recommending upgrades (if necessary) as part of our Preventative Maintenance Service.

What can you do?

To mitigate your risk we recommend an audit of your centrally piped oxygen systems for compliance with CSA Z7396-1 (7.1.13).

With our growing database of information on most vintages of manifolds and regulators we would be happy to help. Call your local VitalAire sales consultant or send us an inquiry through our website at www.vitalaire.com.

WHAT'S NEW??

Have you heard "the only constant in healthcare is change"? It's true, and VitalAire takes our clients' changing needs seriously. Here are two new products we have launched in response to your feedback!



The seven (7) gas alarm panel. With dedicated AGSS systems becoming more common, many OR's need to monitor seven services, something you can now do with a single alarm panel!

VitalAire now offers the smallest, most accurate and durable alarm sensor in the industry. This computer calibrated, temperature compensated transducer makes retrofitting obsolete local alarm panels a snap!



Congratulations to Dr Everett Chalmers Regional Hospital, Fredericton N.B., on the opening of your new NICU.

Life is in the details, and perhaps nowhere else is design and layout more important than in a NICU. Delivering quality healthcare to tiny neonatal customers requires careful planning to ensure easy access to the essential services without compromising access to the patient.



Thank-you VitalAire and Amico for working closely with our staff to select the right product and create a very functional headwall design. We are very happy with the new headwall systems and pleased with the quality of the materials and workmanship. Amico does an exceptional job with their product.

*Calvin Gesner
Engineering Services*

VitalAire represents a complete line of headwalls manufactured by Amico Corporation of Richmond Hill, Ontario. Built to exacting standards and subject to the industry's most rigorous quality control, Amico fabricates headwalls designed for all acuity levels.

Call VitalAire today for a consultation on the most cost effective and functional headwall solutions for your next renovation.

2006 Trade Show Calendar

Look for us at these Trade Shows in 2006:

- CHES B.C. Chapter, Kelowna, March 26 – 28
- CHES Ontario Chapter, Collingwood, April 30 – May 2
- CHES National Meeting & Trade Show, Halifax, September 17 – 19

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VitalAire MGS Installations & Service Firms

GH Medical – Quebec (800) 263-9984
GH Medical – Ontario (877) 397-8131
Campbell Medical – B.C. (800) 667-3636

www.vitalaire.com

Did You Know?



Liquid Oxygen Bulk

Liquid oxygen boils at -183.0°C

Liquid nitrogen boils at -195.8°C

Water boils at $+100^{\circ}\text{C}$



We refer to liquid oxygen and liquid nitrogen as **Cryogenic** products because they have a normal boiling point below -90°C at atmospheric pressure.

For healthcare applications we commonly store cryogenic products in bulk tanks. Each bulk tank consists of two vessels, one inside the other and separated by special insulating materials and deep vacuum. The result is a "super thermos" that will keep oxygen and nitrogen in liquid form even when the outside temperature is a balmy $+30^{\circ}\text{C}$. Imagine that, storing something outdoors at 225° below ambient temperature!

Hospitals use oxygen in gaseous form, so we "vaporize" the liquid as it leaves the bulk tank by passing it through a giant radiator to warm up and "boil" it into a gas. The gas is then distributed through pipelines for use in patient therapies.

Nitrogen is used in both gaseous and liquid forms. Most operating rooms use gaseous nitrogen to pneumatically drive surgical tools. Liquid nitrogen is used in various hospital departments for cryogenic storage of transfusion blood, transplant tissues, and research samples such as stem cells.

VitalAire's installation and service firms, GH and Campbell Medical, specialize in medical pipelines for both gaseous and liquid delivery. For the latter, we use special stainless steel vacuum insulated pipe (VIP) to keep the product from boiling while en-route to its final destination. Like a bulk tank, VIP has an inner pipe surrounded by a multi-layered insulation and an outer pipe with a deep vacuum drawn in-between to ensure optimal thermal efficiency.



Chart's Internal Bellows VIP

Air Liquide Santé organizations around the world offer leading edge cryogenic equipment, including dewars, freezers (LN_2 & mechanical), shippers, tissue bank data management software, and a complete range of related services. In 2006 VitalAire will be expanding its cryogenic offering to meet growing Canadian demand in for a full scope product and services provider.



Stay tuned to CirculAire and visit www.vitalaire.com in 2006 for news on new products and services.